Small Business Innovation Research

High-Gain, Sheared MCPs Using an Innovative Boule Design

Pegasus Glassworks, Inc.

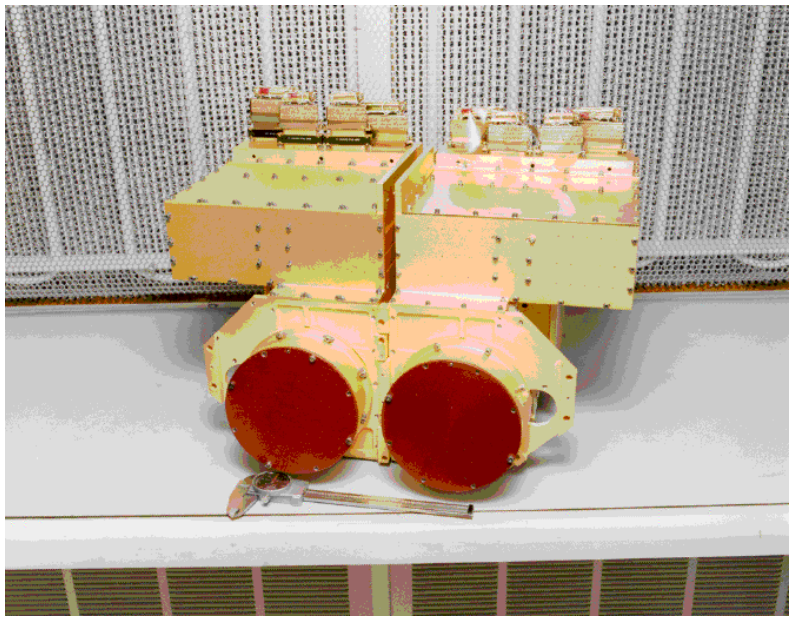
Sturbridge, MA

INNOVATION

Developed an imaging intensifier plate with low ion feedback, low dark counts, high gain in a single MCP, and uniformity of response and gain across the plate.

ACCOMPLISHMENTS

- Imaging Intensifier Plate used in a sealed detector system called a Multi-Anode Microchannelplate Array (MAMA).
- Two types now operating successfully in the Space Telescope Imaging Spectrograph (STIS) on the Hubble Space Telescope, with high global and local dynamic range, high signal-to-noise, long lifetime, and geometric stability.
- Unique astronomical data using the UV imaging, long slit and echelle spectroscopy capabilities of this instrument are emerging, enabled by the MAMA detectors with their curved microchannel plates.



Two MAMA Detectors Now Flying on STIS

COMMERCIALIZATION

- MAMA detectors will be useful for high quality industrial inspection where faint UV light is produced in the presence of strong visible light, such as electric motor manufacture, and electric power distribution.
- Other uses are in time of flight mass spectrometry (TOFMS), night vision imaging devices, and EUV and soft x-ray imaging.

GOVERNMENT SCIENCE/APPLICATIONS

- In addition to the use of these microchannelplates in the MAMA detectors in the STIS instrument, they are being used in further upcoming HST instruments, the Advanced Camera for Surveys, and the Cosmic Origins Spectrograph.

Goddard Space Flight Center

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